

WHAT IS CLAIMED IS:

1. A microparticle comprised of an electrically conductive material having (a) one or more copies of an assay-ligand immobilized on its surface and (b) a plurality of electrochemiluminescent moieties immobilized on its surface.

2. A microparticle comprised of an electrically conductive material having a coating thereupon, and further comprising (a) one or more copies of an assay-ligand immobilized on said coating, and (b) a plurality of electrochemiluminescent moieties immobilized on said coating.

3. A microparticle comprised of an electrically conductive material having plurality of copies of an assay-ligand labeled with an electrochemiluminescent moiety immobilized on its surface.

4. A microparticle comprised of an electrically conductive material having a plurality of copies of a binding reactant labeled with an electrochemiluminescent moiety immobilized on its surface.

5. A microparticle comprised of an electrically conductive material having a plurality of copies of an immunoreactant labeled with an electrochemiluminescent moiety immobilized on its surface.

6. A method for conducting electrochemiluminescence measurements for a binding analyte-of-interest comprising the steps of:

- 1 (a) forming a complex comprising  
2 (i) a microparticle comprised of an  
3 electrically conductive material having  
4 one or more copies of an assay-ligand  
5 immobilized on its surface, said assay-  
6 ligand being capable of binding with  
7 said analyte or with  
8 (ii) an assay-ligand immobilized on an electrode;  
9 and  
10 (b) conducting an electrochemiluminescence measurement  
11 at said electrode in the presence of  
12 electrochemiluminescence reactants.

13 7. A method for conducting electrochemiluminescence  
14 measurements for a binding analyte-of-interest comprising the  
15 steps of:

- 16 (a) forming a complex comprising  
17 (i) a microparticle comprised of an  
18 electrically conductive material having  
19 one or more copies of an assay-ligand  
20 immobilized on its surface and a  
21 plurality of electrochemiluminescent  
22 moieties immobilized on its surface; and  
23 (ii) an assay-ligand immobilized on an  
24 electrode;

- 1 (b) conducting an electrochemiluminescence  
2 measurement at said electrode in the presence  
3 of electrochemiluminescence reactants.

4 8. A method for conducting electrochemiluminescence  
5 measurements for a binding analyte-of-interest comprising the  
6 steps of:

- 7 (a) forming a complex comprising  
8 (i) a microparticle comprised of an  
9 electrically conductive material having  
10 a plurality of copies of an assay-ligand  
11 immobilized on its surface, said assay-  
12 ligand being capable of binding with  
13 said analyte or with an assay-ligand  
14 immobilized on an electrode and being  
15 labeled with an electrochemiluminescent  
16 moiety; and  
17 (ii) an assay-ligand immobilized on an  
18 electrode;  
19 (b) conducting an electrochemiluminescence  
20 measurement at said electrode in the presence  
21 of electrochemiluminescence reactants.

1           9. A method for conducting electrochemiluminescence  
2 measurements for a binding analyte-of-interest comprising the  
3 steps of:

- 4           (a) forming a complex comprising  
5               (i) said analyte,  
6               (ii) a microparticle having one or more  
7                   copies of an assay-ligand immobilized on  
8                   its surface, said assay-ligand being  
9                   capable of binding with said analyte;  
10                  and  
11               (iii) an assay-ligand immobilized on an  
12                   electrode.  
13           (b) conducting an electrochemiluminescence  
14               measurement at said electrode in the presence  
15               of electrochemiluminescence reactants.

16           10. A method for conducting electrochemiluminescence  
17 measurements for a binding analyte-of-interest comprising the  
18 steps of:

- 19           (a) forming a complex comprising  
20               (i) said analyte,  
21               (ii) a microparticle having one or more  
22                   copies of a binding reactant immobilized  
23                   on its surface, said binding reactant  
24                   being specific for said analyte, and

(iii) a binding reactant immobilized on an electrode; and

(b) conducting an electrochemiluminescence measurement at said electrode in the presence of electrochemiluminescence reactants.

11. A method for conducting electrochemiluminescence measurements for a binding analyte-of-interest comprising the steps of:

(a) forming a complex comprising

(i) said analyte,

(ii) a microparticle having one or more copies of an assay-ligand immobilized on its surface and a plurality of electrochemiluminescent moieties immobilized on its surface; and  
(iii) an assay-ligand immobilized on an electrode.

(b) conducting an electrochemiluminescence measurement at said electrode in the presence of electrochemiluminescence reactants.

12. A method for conducting electrochemiluminescence measurements for a binding analyte-of-interest comprising the steps of:

(a) forming a complex comprising

(i) said analyte,

- 1 (ii) a microparticle having a plurality of  
2 copies of an assay-ligand immobilized on  
3 its surface, said assay-ligand being  
4 capable of binding with said analyte or  
5 with an assay-ligand immobilized on an  
6 electrode and being labeled with an  
7 electrochemiluminescent moiety; and  
8 (iii) an assay-ligand immobilized on an  
9 electrode.

- 10 (b) conducting an electrochemiluminescence  
11 measurement at said electrode in the presence  
12 of electrochemiluminescence reactants.

13 13. A method for conducting electrochemiluminescence  
14 measurements for a binding analyte of interest comprising the  
15 steps of:

- 16 (a) forming a complex comprising  
17 (i) said analyte,  
18 (ii) a microparticle comprised of an  
19 electrically conductive material having  
20 one or more copies of an assay-ligand  
21 immobilized on its surface, said assay-  
22 ligand being capable of binding with  
23 said analyte or with (iii); and  
24 (iii) an assay-ligand immobilized on an  
25 electrode; and

- 1 (b) conducting an electrochemiluminescence  
2 measurement at said electrode in the presence  
3 of electrochemiluminescence reactants.

4 14. A method for conducting electrochemiluminescence  
5 measurements for a binding analyte-of-interest comprising the  
6 steps of:

- 7 (a) forming a complex comprising  
8 (i) said analyte,  
9 (ii) a microparticle having one or more  
10 copies of an assay-ligand immobilized on  
11 its surface and a plurality of  
12 electrochemiluminescent moieties  
13 immobilized on its surface; and  
14 (iii) an assay-ligand immobilized on an  
15 electrode.  
16 (b) conducting an electrochemiluminescence  
17 measurement at said electrode in the presence  
18 of electrochemiluminescence reactants.

19 15. A method for conducting electrochemiluminescence  
20 measurements for a binding analyte-of-interest comprising the  
21 steps of:

- 22 (a) forming a complex comprising  
23 (i) said analyte,  
24 (ii) a microparticle comprised of an  
25 electrically conductive material having

one or more copies of an assay-ligand immobilized on its surface, said assay-ligand being capable of binding with said analyte or with an assay-ligand immobilized on an electrode and being labeled with an electrochemiluminescent moiety; and

(iii) an assay-ligand immobilized on an electrode;

(b) conducting an electrochemiluminescence measurement at said electrode in the presence of electrochemiluminescence reactants.

16. A method for performing an electrochemiluminescence binding assay for an analyte-of-interest present in a sample comprising the steps of:

(a) forming a composition comprising

(i) said sample; and

(ii) a microparticle comprised of an electrically conductive material having one or more of copies of an assay-ligand immobilized on its surface, said assay-ligand being capable of binding with said analyte or with the assay-ligand recited in step (c);



- 1 (b) incubating said composition to form a  
2 complex;  
3 (c) causing said complex to bind to an assay-  
4 ligand immobilized on an electrode; and  
5 (d) conducting an electrochemiluminescence  
6 measurement in the presence of  
7 electrochemiluminescence reactants.

8 17. A method for performing an  
9 electrochemiluminescence binding assay for an analyte-of-interest  
10 present in a sample comprising the steps of:

- 11 (a) forming a composition comprising  
12 (i) said sample;  
13 (ii) a microparticle comprised of an  
14 electrically conductive material having  
15 one or more of copies of an assay-ligand  
16 immobilized on its surface, said assay-  
17 ligand being capable of binding with  
18 said analyte or with (iii); and  
19 (iii) an assay-ligand immobilized on an  
20 electrode;  
21 (b) incubating said composition to form a  
22 complex; and  
23 (c) conducting an electrochemiluminescence  
24 measurement in the presence of  
25 electrochemiluminescence reactants.

1 18. A method for performing an  
2 electrochemiluminescence binding assay for an analyte-of-interest  
3 present in a sample comprising the steps of:

- 4 (a) forming a system comprising  
5 (i) said sample; and  
6 (ii) an assay-ligand immobilized on an  
7 electrode;  
8 (b) incubating said system to form a complex;  
9 (c) causing said complex to bind to a  
10 microparticle comprised of an electrically  
11 conductive material having one or more one or  
12 more copies of an assay-ligand immobilized on  
13 its surface, said assay-ligand being capable  
14 of binding with said analyte or with an  
15 assay-ligand; and  
16 (d) conducting an electrochemiluminescence  
17 measurement at said electrode in the presence  
18 of electrochemiluminescence reactants.

19 19. A method for performing an  
20 electrochemiluminescence binding assay for an analyte-of-interest  
21 present in a sample based upon measurements of  
22 electrochemiluminescence at an electrode comprising the steps of:

- 23 (a) forming a composition comprising  
24 (i) said sample; and

1 (ii) a microparticle comprised of an  
2 electrically conductive material having  
3 one or more copies of an assay-ligand  
4 immobilized on its surface and a  
5 plurality of electrochemiluminescent  
6 moieties immobilized on its surface;

7 (b) incubating said composition to form a  
8 complex;

9 (c) causing said complex to bind to an assay-  
10 ligand immobilized on an electrode; and

11 (d) conducting an electrochemiluminescence  
12 measurement at said electrode in the presence  
13 of electrochemiluminescence reactants.

14 20. A method for performing an  
15 electrochemiluminescence binding assay for an analyte-of-interest  
16 present in a sample based upon measurements of  
17 electrochemiluminescence at an electrode comprising the steps of:

18 (a) forming a composition comprising

19 (i) said sample; and

20 (ii) a microparticle comprised of an  
21 electrically conductive material having  
22 a plurality of copies of an assay-ligand  
23 immobilized on its surface, said assay-  
24 ligand being capable of binding with  
25 said analyte or with an assay-ligand and

- 1 being labeled with an  
2 electrochemiluminescent moiety;  
3 (b) incubating said composition to form a  
4 complex;  
5 (c) causing said complex to bind to an assay-  
6 ligand immobilized on an electrode; and  
7 (d) conducting an electrochemiluminescence  
8 measurement at said electrode in the presence  
9 of electrochemiluminescence reactants.

10 21. A method for performing an  
11 electrochemiluminescence binding assay for an analyte-of-interest  
12 present in a sample based upon measurements of  
13 electrochemiluminescence at an electrode comprising the steps:

- 14 (a) forming a system comprising  
15 (i) said sample; and  
16 (ii) a microparticle comprised of an  
17 electrically conductive material having  
18 one or more copies of an assay-ligand  
19 immobilized on its surface and a  
20 plurality of electrochemiluminescent  
21 moieties immobilized on its surface;  
22 (iii) an assay-ligand immobilized on an  
23 electrode;  
24 (b) incubating said system to form a complex; and

- 1 (c) conducting an electrochemiluminescence  
2 measurement at said electrode in the presence  
3 of electrochemiluminescence reactants.

4 22. A method for performing an  
5 electrochemiluminescence binding assay for an analyte-of-interest  
6 present in a sample based upon measurements of  
7 electrochemiluminescence at an electrode comprising the steps:

- 8 (a) forming a system comprising  
9 (i) said sample; and  
10 (ii) a microparticle comprised of an  
11 electrically conductive material having  
12 a plurality of copies of an assay-ligand  
13 immobilized on its surface, said assay-  
14 ligand being capable of binding with  
15 said analyte or with an assay-ligand and  
16 being labeled with an  
17 electrochemiluminescent moiety;  
18 (iii) an assay-ligand immobilized on an  
19 electrode;  
20 (b) incubating said system to form a complex; and  
21 (c) conducting an electrochemiluminescence  
22 measurement at said electrode in the presence  
23 of electrochemiluminescence reactants.

24 23. A method for performing an  
25 electrochemiluminescence binding assay for an analyte-of-interest

1 present in a sample based upon measurements of  
2 electrochemiluminescence at an electrode comprising the steps:

- 3 (a) forming a system comprising  
4 (i) said sample; and  
5 (ii) an assay-ligand immobilized on an  
6 electrode;  
7 (b) incubating said system to form a complex;  
8 (c) causing said complex to bind to a  
9 microparticle comprised of an electrically  
10 conductive material having one or more copies  
11 of an assay-ligand immobilized on its surface  
12 and a plurality of electrochemiluminescent  
13 moieties immobilized on its surface; and  
14 (d) conducting an electrochemiluminescence  
15 measurement at said electrode in the presence  
16 of electrochemiluminescence reactants.

17 24. A method for performing an  
18 electrochemiluminescence binding assay for an analyte-of-interest  
19 present in a sample based upon measurements of  
20 electrochemiluminescence at an electrode comprising the steps:

- 21 (a) forming a system comprising  
22 (i) said sample; and  
23 (ii) an assay-ligand immobilized on an  
24 electrode;  
25 (b) incubating said system to form a complex;

- 1 (c) causing said complex to bind to a  
2 microparticle comprised of an electrically  
3 conductive material having a plurality of  
4 copies of an assay-ligand immobilized on its  
5 surface, said assay-ligand being capable of  
6 binding with said analyte or with an assay-  
7 ligand and being labeled with an  
8 electrochemiluminescent moiety; and  
9 (d) conducting an electrochemiluminescence  
10 measurement at said electrode in the presence  
11 of electrochemiluminescence reactants.

12 25. A method for performing an  
13 electrochemiluminescence binding assay for an analyte-of-interest  
14 present in a sample based upon measurements of  
15 electrochemiluminescence at an electrode comprising the steps:

- 16 (a) forming a system comprising  
17 (i) said sample; and  
18 (ii) a microparticle having one or more  
19 copies of an assay-ligand immobilized on  
20 its surface and a plurality of  
21 electrochemiluminescent moieties  
22 immobilized on its surface;  
23 (b) incubating said composition to form a  
24 complex;

- 1 (c) causing said complex to bind to an assay-  
2 ligand immobilized on an electrode; and  
3 (d) conducting an electrochemiluminescence  
4 measurement at said electrode in the presence  
5 of electrochemiluminescence reactants.

6 26. A method for performing an  
7 electrochemiluminescence binding assay for an analyte-of-interest  
8 present in a sample based upon measurements of  
9 electrochemiluminescence at an electrode comprising the steps:

- 10 (a) forming a system comprising  
11 (i) said sample; and  
12 (ii) a microparticle having a plurality of  
13 copies of an assay-ligand immobilized on  
14 its surface, said assay-ligand being  
15 capable of binding with said analyte or  
16 with an assay-ligand and being labeled  
17 with an electrochemiluminescent moiety;  
18 (b) incubating said composition to form a  
19 complex;  
20 (c) causing said complex to bind to an assay-  
21 ligand immobilized on an electrode; and  
22 (d) conducting an electrochemiluminescence  
23 measurement at said electrode in the presence  
24 of electrochemiluminescence reactants.



1                   27. A method for performing an  
2 electrochemiluminescence binding assay for an analyte-of-interest  
3 present in a sample based upon measurements of  
4 electrochemiluminescence at an electrode comprising the steps:

- 5                   (a) forming a system comprising  
6                         (i) said sample; and  
7                         (ii) a microparticle having one or more  
8                                 copies of an assay-ligand immobilized on  
9                                 its surface and a plurality of  
10                                electrochemiluminescent moieties  
11                                immobilized on its surface;  
12                         (iii) an assay-ligand immobilized on an  
13                                electrode;  
14                   (b) incubating said composition to form a  
15                                complex; and  
16                   (c) conducting an electrochemiluminescence  
17                                measurement at said electrode in the presence  
18                                of electrochemiluminescence reactants.

19                   28. A method for performing an  
20 electrochemiluminescence binding assay for an analyte-of-interest  
21 present in a sample based upon measurements of  
22 electrochemiluminescence at an electrode comprising the steps:

- 23                   (a) forming a system comprising  
24                         (i) said sample; and

- 1 (ii) a microparticle having a plurality of  
2 copies of an assay-ligand immobilized on  
3 its surface, said assay-ligand being  
4 capable of binding with said analyte or  
5 with an assay-ligand and being labeled  
6 with an electrochemiluminescent moiety;  
7 (iii) an assay-ligand immobilized on an  
8 electrode;  
9 (b) incubating said composition to form a  
10 complex; and  
11 (c) conducting an electrochemiluminescence  
12 measurement at said electrode in the presence  
13 of electrochemiluminescence reactants.

14 29. A method for performing an  
15 electrochemiluminescence binding assay for an analyte-of-interest  
16 present in a sample based upon measurements of  
17 electrochemiluminescence at an electrode comprising the steps:

- 18 (a) forming a system comprising  
19 (i) said sample; and  
20 (ii) an assay-ligand immobilized on an  
21 electrode;  
22 (b) incubating said composition to form a  
23 complex; and  
24 (c) causing said complex to bind to a  
25 microparticle having one or more copies of an

1 assay-ligand immobilized on its surface and a  
2 plurality of electrochemiluminescent moieties  
3 immobilized on its surface; and

4 (d) conducting an electrochemiluminescence  
5 measurement at said electrode in the presence  
6 of electrochemiluminescence reactants.

7 30. A method for performing an  
8 electrochemiluminescence binding assay for an analyte-of-interest  
9 present in a sample based upon measurements of  
10 electrochemiluminescence at an electrode comprising the steps:

- 11 (a) forming a system comprising  
12 (i) said sample; and  
13 (ii) an assay-ligand immobilized on an  
14 electrode;  
15 (b) incubating said composition to form a  
16 complex; and  
17 (c) causing said complex to bind to a  
18 microparticle having a plurality of copies of  
19 an assay-ligand immobilized on its surface,  
20 said assay-ligand being capable of binding  
21 with said analyte or with an assay-ligand and  
22 being labeled with an electrochemiluminescent  
23 moiety; and

- 1 (d) conducting an electrochemiluminescence  
2 measurement at said electrode in the presence  
3 of electrochemiluminescence reactants.

4 31. A method for performing an  
5 electrochemiluminescence binding assay for an analyte-of-interest  
6 present in a sample comprising the steps of:

- 7 (a) forming a composition comprising  
8 (i) said sample; and  
9 (ii) a microparticle having one or more  
10 copies of an assay-ligand immobilized on  
11 its surface, said assay-ligand being  
12 capable of binding with said analyte or  
13 with the assay-ligand recited in step  
14 (c);  
15 (b) incubating said composition to form a  
16 complex;  
17 (c) causing said complex to bind to an assay-  
18 ligand immobilized on an electrode; and  
19 (d) conducting an electrochemiluminescence  
20 measurement in the presence of  
21 electrochemiluminescence reactants.

22 32. A method for performing an  
23 electrochemiluminescence binding assay for an analyte-of-interest  
24 present in a sample comprising the steps of:

- 25 (a) forming a composition comprising

1 (i) said sample;

2 (ii) a microparticle having one or more  
3 copies of an assay-ligand immobilized on  
4 its surface, said assay-ligand being  
5 capable of binding with said analyte or  
6 with (iii); and

7 (iii) an assay-ligand immobilized on an  
8 electrode;

9 (b) incubating said composition to form a  
10 complex; and

11 (c) conducting an electrochemiluminescence  
12 measurement in the presence of  
13 electrochemiluminescence reactants.

14 33. A method for performing an  
15 electrochemiluminescence binding assay for an analyte-of-interest  
16 present in a sample comprising the steps of:

17 (a) forming a system comprising

18 (i) said sample; and

19 (ii) an assay-ligand immobilized on an  
20 electrode;

21 (b) incubating said system to form a complex;

22 (c) causing said complex to bind to a  
23 microparticle having one or more copies of an  
24 assay-ligand immobilized on its surface, said

1 assay-ligand being capable of binding with  
2 said analyte or with an assay-ligand; and  
3 (d) conducting an electrochemiluminescence  
4 measurement at said electrode in the presence  
5 of electrochemiluminescence reactants.

6 34. A complex comprising:-

- 7 (a) an analyte-of-interest;  
8 (b) a microparticle having one or more copies of  
9 an assay-ligand immobilized on its surface  
10 and a plurality of electrochemiluminescent  
11 moieties immobilized on its surface; and  
12 (c) an assay-ligand immobilized on an electrode.

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1           35. A method for performing an  
2 electrochemiluminescence binding assay for an analyte-of-interest  
3 present in a sample comprising the steps of:

- 4           (a) forming a composition comprising  
5               (i) said sample;  
6               (ii) a microparticle comprised of an  
7               electrically conductive material; and  
8               (iii) an assay-ligand immobilized on an  
9               electrode;  
10           (b) incubating said composition to form a  
11           complex; and  
12           (c) conducting an electrochemiluminescence  
13           measurement in the presence of  
14           electrochemiluminescence reactants.

15           36. A method for performing an  
16 electrochemiluminescence binding assay for an analyte-of-interest  
17 present in a sample comprising the steps of:

- 18           (a) forming a composition comprising  
19               (i) said sample;  
20               (ii) a microparticle comprised of an  
21               electrically conductive material, said  
22               microparticle having one or more copies  
23               of an assay-ligand and a plurality of  
24               electrochemiluminescent moieties  
25               immobilized on its surface; and

(iii) an assay-ligand immobilized on an electrode;

(b) incubating said composition to form a complex; and

(c) conducting an electrochemiluminescence measurement in the presence of electrochemiluminescence reactants.

37. A method for conducting electrochemiluminescence measurements for a binding analyte-of-interest comprising the steps of:

(a) forming a complex comprising

(i) a microparticle having one or more copies of an assay-ligand and plurality of electrochemiluminescent moieties immobilized on its surface; and

(ii) an assay-ligand immobilized on an electrode; and

(b) conducting an electrochemiluminescence measurement at said electrode in the presence of electrochemiluminescence reactants.

38. A method for conducting electrochemiluminescence measurements for a binding analyte-of-interest comprising the steps of:

(a) forming a complex comprising



(i) a microparticle comprised of an electrically conductive material having one or more copies of an assay-ligand immobilized on its surface; and

(ii) an assay-ligand immobilized on an electrode; and

(b) conducting an electrochemiluminescence measurement at said electrode in the presence of electrochemiluminescence reactants.

39. A method for conducting electrochemiluminescence measurements for a binding analyte-of-interest comprising the steps of:

(a) forming a complex comprising

(i) a microparticle comprised of an electrically conductive material, said microparticle having one or more copies of an assay-ligand and a plurality of electrochemiluminescent moieties immobilized on its surface; and

(ii) an assay-ligand immobilized on an electrode; and

(b) conducting an electrochemiluminescence measurement at said electrode in the presence of electrochemiluminescence reactants.

1           40. A reagent for carrying out ECL assays for an  
2 analyte-of-interest comprising an assay-ligand, said assay-ligand  
3 being linked to a soluble polymer comprising a plurality of  
4 electrochemiluminescence moieties.

5           41. A complex comprising:

- 6                   (a) an analyte-of-interest  
7                   (b) an assay-ligand linked to a soluble polymer,  
8                         said polymer comprising a plurality of  
9                         electrochemiluminescent moieties.  
10                   (c) an assay ligand immobilized on an electrode.

11           42. A method for conducting electrochemiluminescence  
12 measurements for a binding analyte-of-interest comprising the  
13 steps of:

- 14                   (a) forming a complex comprising  
15                         (i) an assay-ligand linked to a soluble  
16                         polymer, said polymer comprising a  
17                         plurality of ECL moieties, said assay-  
18                         ligand being capable of binding with  
19                         said analyte or with;  
20                         (ii) an assay-ligand immobilized on an electrode;  
21                         and  
22                   (b) conducting an electrochemiluminescence measurement  
23 at said electrode in the presence of  
24 electrochemiluminescence reactants.

1           43. A method for conducting electrochemiluminescence  
2 measurements for a binding analyte-of-interest comprising the  
3 steps of:

- 4           (a) forming a complex comprising  
5               (i) said analyte,  
6               (ii) an assay-ligand linked to a soluble  
7               polymer, said polymer comprising a  
8               plurality of ECL moieties, said assay-  
9               ligand being capable of binding with  
10              said analyte; and  
11              (iii) an assay-ligand immobilized on an  
12              electrode.  
13           (b) conducting an electrochemiluminescence  
14              measurement at said electrode in the presence  
15              of electrochemiluminescence reactants.

16           44. A method for performing an  
17 electrochemiluminescence binding assay for an analyte-of-interest  
18 present in a sample based upon measurements of  
19 electrochemiluminescence at an electrode comprising the steps:

- 20           (a) forming a system comprising  
21               (i) said sample; and  
22               (ii) an assay-ligand linked to a soluble  
23               polymer, said polymer comprising a  
24               plurality of electrochemiluminescent  
25               moieties; and

(iii) an assay-ligand immobilized on an  
electrode;

(b) incubating said system to form a complex; and

(c) conducting an electrochemiluminescence  
measurement at said electrode in the presence  
of electrochemiluminescence reactants.

45. A metallic microparticle having a plurality of  
electrochemiluminescent moieties immobilized on its surface.

46. The microparticle of claim 1 wherein said  
microparticle is comprised of gold.

47. The microparticle of claim 1 wherein said  
microparticle comprises a carbon fibril.

48. The microparticle of claim 1 wherein said  
microparticle comprises a carbon-based particle.

49. The microparticle of claim 1 wherein said  
microparticle comprises a metal oxide.

50. The microparticle of claim 1 wherein said  
microparticle comprises a conductive polymer.

51. The microparticle of claim 1 wherein said  
microparticle comprises a semi-conductor material.

52. The microparticle of claim 1 wherein said  
microparticle comprises silicon dioxide.

53. The microparticle of claim 1 wherein said  
microparticle comprises an organic polymer.

1 54. The microparticle of claim 1 wherein said  
2 conductive material is light-transmissive.

3 55. The microparticle of claim 1 wherein said  
4 microparticle has a size of from 5nm-10 micrometer.

5 56. The microparticle of claim 1 wherein said  
6 microparticle has a size of from 20nm-200nm.

7 59. The microparticle of claim 1 wherein said  
8 microparticle is comprised of a highly conductive material.

9 60. The microparticle of claim 1 wherein said  
10 microparticle is comprised of a very highly conductive material.

11 61. The microparticle of claim 1 wherein the number of  
12 said electrochemiluminescent moieties is greater than 100.

13 62. The microparticle of claim 1 wherein said  
14 microparticle is comprised of an ECL-active electrode material.

15 63. The method of claim 6 wherein said microparticle  
16 is comprised of gold.

17 64. The method of claim 6 wherein said microparticle  
18 comprises a carbon fibril.

19 65. The method of claim 6 wherein said microparticle  
20 comprises a carbon-based particle.

21 66. The method of claim 6 wherein said microparticle  
22 comprises a metal oxide.

23 67. The method of claim 6 wherein said microparticle  
24 comprises a conductive polymer.

1 68. The method of claim 6 wherein said microparticle  
2 comprises a semi-conductor material.

3 69. The method of claim 6 wherein said microparticle  
4 comprises silicon dioxide.

5 70. The method of claim 6 wherein said microparticle  
6 comprises an organic polymer.

7 71. The method of claim 6 wherein said conductive  
8 material is light-transmissive.

9 72. The method of claim 6 wherein said microparticle  
10 has a size of from 5nm-10 micrometer.

11 73. The method of claim 6 wherein said microparticle  
12 has a size of from 20nm-200nm.

13 74. The method of claim 6 wherein said microparticle  
14 is comprised of a very highly conductive material.

15 75. The method of claim 6 wherein said microparticle  
16 is comprised of a highly conductive material.

17 76. The method of claim 6 wherein the number of said  
18 electrochemiluminescent moieties is greater than 100.

19 77. The method of claim 6 wherein said microparticle  
20 is comprised of an ECL-active electrode material.

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